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U.S. Department of the Interior • U.S. Geological Survey

# MINERAL INDUSTRY SURVEYS

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## TUNGSTEN IN FEBRUARY AND MARCH 1997

U.S. net production of intermediate tungsten products, including metal powder and tungsten carbide powder produced from hydrogen-reduced metal powder, averaged 679 tons per month during the first quarter of 1997. The average monthly reported consumption of tungsten in end-use products was 532 tons during the first quarter of 1997. Trade data for January through February 1997 are included in this issue. Trade data for March will be published in a subsequent issue.

### Note

With the exception of prices, all data in this report have been rounded to no more than three significant digits. Totals were calculated by using unrounded data.

### Price

Prices for tungsten ore in dollars per metric ton unit (\$/mtu) from *Metal Bulletin* are listed below. Prices in dollars per short ton unit were converted from metric ton unit prices and rounded to the nearest dollar. These prices represent combined prices

for wolframite and scheelite ores with a minimum WO<sub>3</sub> content of 65%.

March 1-31, 1997

Low \$45/mtu WO<sub>3</sub> (\$41/stu WO<sub>3</sub>)

High \$55/mtu WO<sub>3</sub> (\$50/stu WO<sub>3</sub>)

April 1-30, 1997

Low \$45/mtu WO<sub>3</sub> (\$41/stu WO<sub>3</sub>)

High \$55/mtu WO<sub>3</sub> (\$50/stu WO<sub>3</sub>)

May 1-31, 1997

Low \$45/mtu WO<sub>3</sub> (\$41/stu WO<sub>3</sub>)

High \$55/mtu WO<sub>3</sub> (\$50/stu WO<sub>3</sub>)

June 1-30, 1997

Low \$45/mtu WO<sub>3</sub> (\$41/stu WO<sub>3</sub>)

High \$55/mtu WO<sub>3</sub> (\$50/stu WO<sub>3</sub>)

TABLE 1  
U.S. SALIENT TUNGSTEN STATISTICS 1/

(Metric tons, tungsten content)

Period	Concentrate			Reported scrap consumption	Intermediate products		
	Reported consumption	Imports for consumption	Stocks, end of period 2/		Net production 3/	Reported consumption 4/	Stocks, end of period 5/
1996: p/ January-December	5,420	4,190 r/	569	2,450	7,530	11,300	1,360
1997:							
January	426 r/	260	808 r/	224 r/	679 r/	555	1,400 r/
February	533	276	584	186	682	516	1,440
March	698	NA	650	250	676	525	1,450
Total	1,660	NA	XX	660	2,040	1,600	XX

p/ Preliminary. r/ Revised. NA Not available. XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Reported by consumers.

3/ Net production of tungsten metal powder, tungsten carbide powder, chemicals, and other products.

4/ Includes data on tungsten carbide powder from secondary sources.

5/ Reported by producers.

TABLE 2  
U.S. PRODUCTION, CONSUMPTION, AND STOCKS OF  
AMMONIUM PARATUNGSTATE, BY MONTH 1/

(Metric tons, tungsten content)

Period	Production	Consumption	Stocks, end of period 2/
1996: p/ January-December	4,450 3/	7,720	558
1997:			
January r/	540	663	572
February	W	689	586
March	W	712	690
Total	540	2,060	XX

p/ Preliminary. r/ Revised. W Withheld to avoid disclosing company proprietary data.

XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Producers and consumers.

3/ Excludes four months of withheld data.

TABLE 3  
U.S. PRODUCTION AND STOCKS OF TUNGSTEN PRODUCTS 1/

(Metric tons, tungsten content)

Product	Net production 2/				Stocks at end of period		
	1996 p/	1997		Year to date	1996 p/	1997	
		February	March			February	March
Metal powder	3,720	357	312	955	815	929	935
Tungsten carbide powder (made from metal powder)	3,810	325	364	1,080	413	403	418
Cast and crystalline carbide powder; other	W	--	--	--	W	W	W
Chemicals	W	W	W	W	129	106	100
Total	7,530	682	676	2,040	1,360	1,440	1,450

p/ Preliminary. W Withheld to avoid disclosing company proprietary data.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Gross production less quantity used to make other products in table.

TABLE 4  
U.S. REPORTED CONSUMPTION OF TUNGSTEN, BY END USE IN 1997 1/ 2/

(Metric tons, tungsten content)

End use	January	February	March	Year to date
Steel:				
Tool	W	W	W	W
Other	9	13	9	31
Superalloys	22	21	24	67
Other alloys (excludes steels and superalloys) 3/	W	W	W	W
Cemented carbides 4/ 5/	461	405	426	1,290
Mill products made from metal powder	W	40	W	40
Chemical uses 6/	W	W	W	W
Miscellaneous and unspecified	62	36	64	162
Total	555	516	525	1,600

W Withheld to avoid disclosing company proprietary data; included with "Miscellaneous and unspecified."

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Does not include materials used in making primary tungsten products.

3/ Includes welding and hard-facing rods and materials, wear- and corrosion-resistant alloys, and nonferrous alloys.

4/ Formerly called "Cutting and wear-resistant materials." Includes diamond bit matrices, cemented and sintered carbides, and cast carbide dies or parts.

5/ Based on reported consumption plus information from other sources.

6/ Formerly called "Chemical and ceramic uses."

TABLE 5  
U.S. REPORTED CONSUMPTION AND CONSUMER STOCKS OF TUNGSTEN MATERIALS IN 1997 1/ 2/

(Metric tons, tungsten content)

Period	Ferro-tungsten	Tungsten metal powder	Tungsten carbide powder 3/	Scheelite (natural, synthetic)	Tungsten scrap	Other tungsten materials 4/	Total
Consumption:							
January	33	36	449	--	30	6	555
February	34	53	394	--	27	8	516
March	28	44	411	--	31	10	525
January-March	95	133	1,250	--	88	24	1,600
Stocks:							
January	21	36	293	--	25	11	387
February	23	24	280	--	24	12	363
March	24	24	298	--	28	17	391

W Withheld to avoid disclosing company proprietary data.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Does not include materials used in making primary tungsten products.

3/ Based on reported consumption plus information from other sources.

4/ Includes tungsten chemicals.

TABLE 6  
U.S. IMPORTS FOR CONSUMPTION OF TUNGSTEN, BY COUNTRY 1/

(Metric tons, tungsten content)

Period and country of origin	Ores and concentrates	Ammonium tungstates	Ferro- tungsten	Metal powder	Tungsten carbide	Other e/ 2/	Total	Total year to date
1996:								
Total	4,190 r/	1,580	535	404	404 r/	2,820	9,930 r/	XX
1997:								
January:								
Austria	--	--	--	--	(3/)	2	2	2
Belgium	--	--	--	(3/)	--	--	(3/)	(3/)
Bolivia	44	--	--	--	--	--	44	44
Canada	--	--	--	(3/)	3	--	4	4
China	--	182	15	11	17	293	518	518
Czech Republic	--	--	--	1	--	--	1	1
France	--	--	--	--	--	(3/)	(3/)	(3/)
Germany	--	1	--	1	8	1	11	11
Hong Kong	--	15	--	--	--	52	67	67
Hungary	--	--	--	--	--	1	1	1
Ireland	--	--	--	--	(3/)	--	(3/)	(3/)
Israel	--	--	--	(3/)	--	1	2	2
Japan	--	25	--	(3/)	--	3	28	28
Korea, Republic of	--	--	--	--	--	(3/)	(3/)	(3/)
Mexico	14	--	--	--	--	(3/)	14	14
Netherlands	--	--	--	--	--	9	9	9
Peru	11	--	--	--	--	--	11	11
Portugal	102	--	--	--	--	--	102	102
Russia	77	--	30	--	--	--	107	107
Rwanda	12	--	--	--	--	--	12	12
Singapore	--	--	--	--	--	(3/)	(3/)	(3/)
Sweden	--	19	--	8	--	(3/)	26	26
Switzerland	--	--	--	--	--	(3/)	(3/)	(3/)
United Kingdom	--	--	--	--	(3/)	(3/)	(3/)	(3/)
Total	260	242	45	22	28	363	960	960

e/ Tungsten content estimated in part. r/ Revised. XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes other unwrought tungsten, wrought tungsten, calcium and other tungstates, tungsten oxides, tungsten chlorides, other tungsten compounds, ash and residues containing mainly tungsten, and other mixtures of inorganic compounds containing tungsten.

3/ Less than 1/2 unit.

Note: Imports of waste and scrap in January 1997 totaled 115 metric tons, tungsten content.

Source: Bureau of the Census.

TABLE 7  
U.S. IMPORTS FOR CONSUMPTION OF TUNGSTEN, BY COUNTRY 1/

(Metric tons, tungsten content)

Period and country of origin	Ores and concentrates	Ammonium tungstates	Ferro- tungsten	Metal powder	Tungsten carbide	Other e/ 2/	Total	Total year to date
1996:								
Total	4,190	1,580	535	404	404	2,820	9,930	XX
1997:								
January	260	242	45	22	28	363	960	XX
February:								
Australia	--	--	--	--	--	(3/)	(3/)	(3/)
Austria	--	--	--	--	1	5	6	8
Belgium	--	--	--	1	--	--	1	1
Bolivia	44	--	--	--	--	--	44	88
Canada	--	--	--	1	(3/)	--	2	5
China	--	141	15	12	6	151	325	843
Czech Republic	--	--	--	--	--	--	--	1
France	--	--	--	--	5	1	6	6
Germany	--	18	--	2	11	4	35	46
Hong Kong	--	30	--	--	--	31	61	128
Hungary	--	--	--	--	--	1	1	1
Ireland	--	--	--	--	(3/)	--	(3/)	(3/)
Israel	--	--	--	--	(3/)	3	3	4
Japan	--	--	--	3	--	4	7	35
Korea, Republic of	--	--	--	--	1	--	1	1
Mexico	14	--	--	--	--	1	15	29
Netherlands	--	--	--	--	--	1	1	9
Peru	20	--	--	--	--	--	20	31
Portugal	198	--	--	--	--	--	198	300
Russia	--	4	58	--	--	40	102	209
Rwanda	--	--	--	--	--	--	--	12
Singapore	--	--	--	--	--	--	--	(3/)
Sweden	--	16	--	9	--	(3/)	26	52
Switzerland	--	--	--	--	--	(3/)	(3/)	1
United Kingdom	--	--	--	--	(3/)	(3/)	1	1
Total	276	208	73	28	25	242	851	1,810
Total, year to date	536	450	118	50	53	605	1,810	XX

e/ Tungsten content estimated in part. r/ Revised. XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes other unwrought tungsten, wrought tungsten, calcium and other tungstates, tungsten oxides, tungsten chlorides, other tungsten compounds, ash and residues containing mainly tungsten, and other mixtures of inorganic compounds containing tungsten.

3/ Less than 1/2 unit.

Note: Imports of waste and scrap in February 1997 totaled 78 metric tons, tungsten content.

Source: Bureau of the Census.

TABLE 8  
U.S. EXPORTS OF TUNGSTEN, BY COUNTRY 1/

(Metric tons, tungsten content)

Period and country of destination	Ores and concentrates e/	Ammonium tungstates	Metal powder e/	Tungsten carbide	Other e/ 2/	Total	Total year to date
1996:							
Total	17	150	240	1,290	289	XX	1,990
1997:							
January:							
Australia	--	--	(3/)	--	(3/)	1	1
Belgium	--	--	--	(3/)	(3/)	(3/)	(3/)
Brazil	--	--	--	--	(3/)	(3/)	(3/)
Canada	--	--	6	25	1	32	32
Chile	--	--	--	(3/)	(3/)	(3/)	(3/)
China	--	--	--	--	(3/)	(3/)	(3/)
Colombia	--	--	--	--	(3/)	(3/)	(3/)
Denmark	--	--	--	(3/)	--	(3/)	(3/)
Finland	--	--	(3/)	--	--	(3/)	(3/)
France	--	--	9	8	(3/)	17	17
Germany	--	--	--	8	17	25	25
Hong Kong	--	--	--	--	(3/)	(3/)	(3/)
India	--	--	--	(3/)	1	2	2
Ireland	--	--	--	(3/)	(3/)	(3/)	(3/)
Israel	--	--	--	--	(3/)	(3/)	(3/)
Italy	--	--	--	3	1	4	4
Japan	5	--	--	5	3	13	13
Korea, Republic of	--	--	--	2	1	3	3
Luxembourg	--	--	--	(3/)	--	(3/)	(3/)
Malaysia	--	--	--	--	(3/)	(3/)	(3/)
Mexico	--	--	(3/)	1	2	3	3
Netherlands	--	--	--	3	(3/)	3	3
Peru	--	--	--	1	--	1	1
Philippines	--	--	--	(3/)	--	(3/)	(3/)
Portugal	--	--	--	3	--	3	3
Singapore	--	--	--	(3/)	(3/)	(3/)	(3/)
South Africa	--	--	--	(3/)	--	(3/)	(3/)
Spain	--	--	--	--	1	1	1
Sweden	--	--	--	6	(3/)	6	6
Taiwan	--	--	--	1	1	1	1
Thailand	--	--	--	--	(3/)	(3/)	(3/)
Turkey	--	--	--	--	1	1	1
United Arab Emirates	--	--	--	(3/)	--	(3/)	(3/)
United Kingdom	--	--	--	2	2	4	4
Total	5	--	16	69	32	122	122

e/ Tungsten content estimated in part. XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes wrought tungsten, ferrotungsten, and other tungstates.

3/ Less than 1/2 unit.

Note: Estimated exports of waste and scrap in January 1997 totaled 93 metric tons, tungsten content.

Source: Bureau of the Census.

TABLE 9  
U.S. EXPORTS OF TUNGSTEN, BY COUNTRY 1/

(Metric tons, tungsten content)

Period and country of destination	Ores and concentrates e/	Ammonium tungstates	Metal powder e/	Tungsten carbide	Other e/ 2/	Total	Total year to date
1996:							
Total	17	150	240	1,290	289	XX	1,990
1997:							
January	5	--	16	69	32	122	122
February:							
Australia	--	--	--	(3/)	--	(3/)	1
Austria	--	--	--	--	(3/)	(3/)	(3/)
Belgium	--	--	--	(3/)	(3/)	(3/)	1
Brazil	--	--	(3/)	1	(3/)	2	2
Canada	--	--	5	33	3	41	73
Chile	--	--	--	(3/)	--	(3/)	(3/)
China	--	--	--	--	(3/)	(3/)	(3/)
Colombia	--	--	--	--	--	--	(3/)
Denmark	--	--	--	--	--	--	(3/)
Finland	--	--	--	--	--	--	(3/)
France	--	--	--	7	(3/)	7	24
Germany	--	--	3	19	1	24	48
Guatemala	--	--	--	(3/)	--	(3/)	(3/)
Hong Kong	--	--	--	--	(3/)	(3/)	1
Hungary	--	--	--	--	(3/)	(3/)	(3/)
India	--	--	--	--	3	3	5
Indonesia	--	--	--	--	(3/)	(3/)	(3/)
Ireland	--	--	--	(3/)	(3/)	(3/)	1
Israel	--	--	--	--	(3/)	(3/)	(3/)
Italy	--	--	--	7	(3/)	7	12
Japan	--	--	--	4	3	7	20
Korea, Republic of	--	--	--	1	1	2	4
Lithuania	--	--	--	--	(3/)	(3/)	(3/)
Luxembourg	--	--	--	--	--	--	(3/)
Malaysia	--	--	--	--	(3/)	(3/)	(3/)
Mexico	--	--	1	(3/)	3	4	7
Netherlands	--	--	(3/)	--	(3/)	(3/)	3
Norway	--	--	--	(3/)	--	(3/)	(3/)
Papua New Guinea	--	--	--	(3/)	--	(3/)	(3/)
Peru	--	--	--	--	--	--	1
Philippines	--	--	--	--	--	--	(3/)
Portugal	--	--	--	--	(3/)	(3/)	3
Saudi Arabia	--	--	--	(3/)	--	(3/)	(3/)
Singapore	--	--	--	(3/)	(3/)	(3/)	1
South Africa	--	--	--	--	--	--	(3/)
Spain	--	--	--	--	1	1	2
Sweden	--	--	1	6	--	7	13
Taiwan	--	--	1	1	1	2	4
Thailand	--	--	--	(3/)	(3/)	(3/)	(3/)
Turkey	--	--	--	--	(3/)	(3/)	1
United Arab Emirates	--	--	--	--	--	--	(3/)
United Kingdom	--	--	1	1	1	3	7
Venezuela	--	--	--	--	(3/)	(3/)	(3/)
Total	--	--	11	81	21	113	236
Total, year to date	5	--	27	150	53	236	XX

e/ Tungsten content estimated in part. XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes wrought tungsten, ferrotungsten, and other tungstates.

3/ Less than 1/2 unit.

Note: Estimated exports of waste and scrap in February 1997 totaled 48 metric tons, tungsten content.

Source: Bureau of the Census.